



NTP
National Toxicology Program

Nominations for CERHR Evaluation

1. Lead

2. Cadmium

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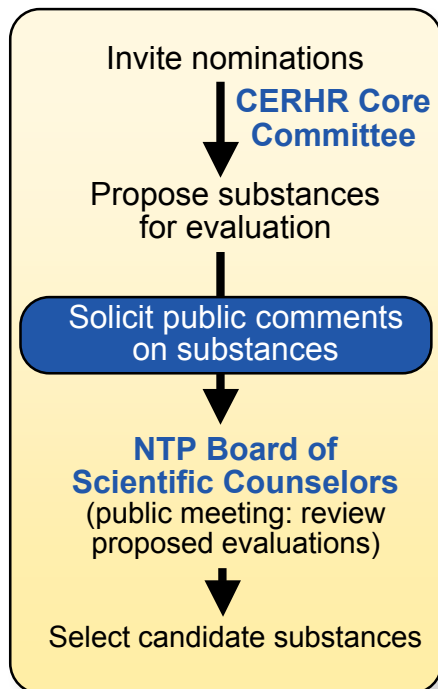
NTP Board of Scientific Counselors



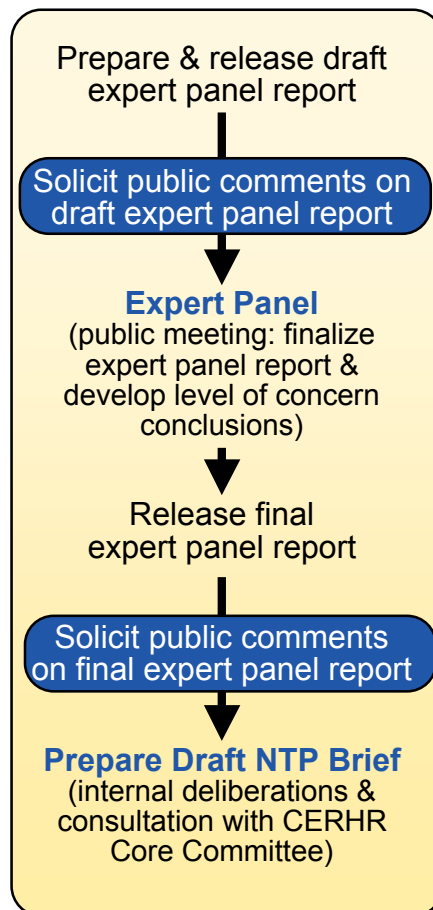


NTP Center for the Evaluation of Risks to Human Reproduction (CERHR) Evaluation Process

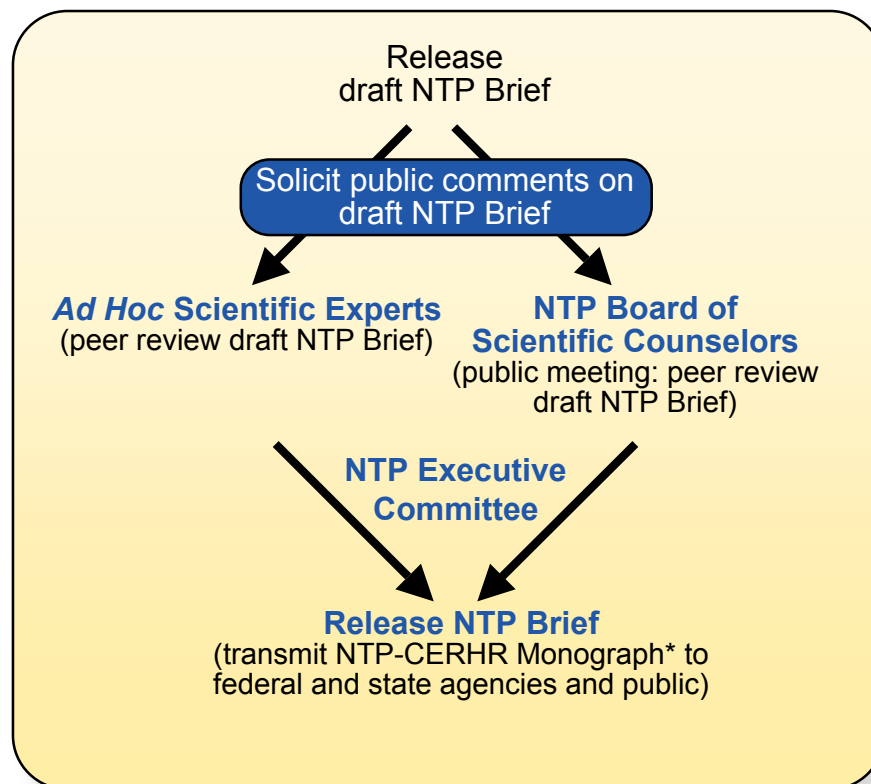
Nominations and Selection of Candidate Substances



Scientific Evaluation of Candidate Substances



Review of Draft NTP Brief and Release of NTP-CERHR Monograph



*The NTP-CERHR Monograph includes the (1) NTP Brief, (2) expert panel roster, (3) final expert panel report, and (4) public comments received on the final expert panel report

NIEHS = National Institute of Environmental Health Sciences

NTP = National Toxicology Program



Lead

Latin: Plumbum. Hence, Pb and plumber

Nomination: NIOSH, Dr. Elizabeth Whelan

October 4, 2006

Rationale: Occupational exposure limits allow blood lead levels (BLL) up to 40 $\mu\text{g}/\text{dL}$. (including women of child-bearing age)

BLLs of 10-19 $\mu\text{g}/\text{dL}$: associated with possible spontaneous abortion and reduced birth weight.*

BLLs below 10 $\mu\text{g}/\text{dL}$: possible adverse population effects suggested by epidemiologic studies.*

CERHR evaluation could confirm need to revise recommended exposure limits.

* Association of Environmental and Occupational Clinics



Lead

July 25, 2007

CERHR Core Committee recommended evaluation of potential reproductive and developmental effects at BLLs below 40 $\mu\text{g}/\text{dL}$.

This evaluation would be unique in two respects:

1. It would be the first CERHR evaluation of a known human developmental toxicant.
2. The evaluation could support the first use of reproductive / developmental toxicity to determine a recommended exposure limit (REL).



Lead

Production in US: 1.4 billion kg (~3 billion lbs) in 2003

Emissions from human sources: 1.6 billion kg/year

Emissions from natural sources: 19 billion kg/year

Human exposure: everyone is exposed. ~200 refs. available

Public concern:

- Widespread, based on exposures resulting from occupation, water, paint, toys and jewelry.
- See recent news stories on children's items from China and Mexico.



Lead

Literature on Reproductive and Developmental Toxicity

Human Developmental Toxicity Studies:

315 studies in EPA Air Quality Criteria Document (2006)

At least 15 new studies have since been published

Animal Developmental Toxicity Studies: 36

Human Reproductive Toxicity Studies: 17

Animal Reproductive Toxicity Studies: 113



Cadmium

Nomination: Anonymous

May, 2000

Rationale: None provided

Core Committee:

Reviewed August 2000 - deferred

Reviewed again October 2006 - deferred

Reviewed again January 2007 - recommended for evaluation



Cadmium

Rationale:

High production, ~1 100 metric tons/year in US
(~ 2.4 million lbs/year)

Widespread human exposure

Increased use and disposal of cadmium/nickel batteries



Cadmium

Literature on Reproductive and Developmental Toxicity

Human Developmental Toxicity Studies: 37

Animal Developmental Toxicity Studies: 94

Human Reproductive Toxicity Studies: 29

Animal Reproductive Toxicity Studies: 110



Cadmium

- Public concern about all “toxic metals” including cadmium
- Controls on imports have been implemented in Europe
- Numerous news articles on need for e-cycling